

## Tangential Flow Grit Chamber

Practical and efficient equipment for the extraction of mineral particles (sand) from industrial and domestic wastewater. It is used at wastewater treatment plants of various capacities.

### SCOPE OF APPLICATION



*Domestic wastewater treatment facilities;*



*Local industrial wastewater treatment facilities;*



*Stormwater and surface wastewater treatment systems.*



**High efficiency of extraction of mineral impurities (sand);**



**Various performance options.**



**Reliable and comfortable design.**



**Continuous operation in automatic mode.**



**Long service life.**



**Low maintenance expenses and low operating costs.**



## OPERATION PRINCIPLE

The process is based on the difference in the density of water and mineral particles. Heavy mineral particles settle at the bottom of the grit chamber, while lighter organic particles are sent to further purification stages.

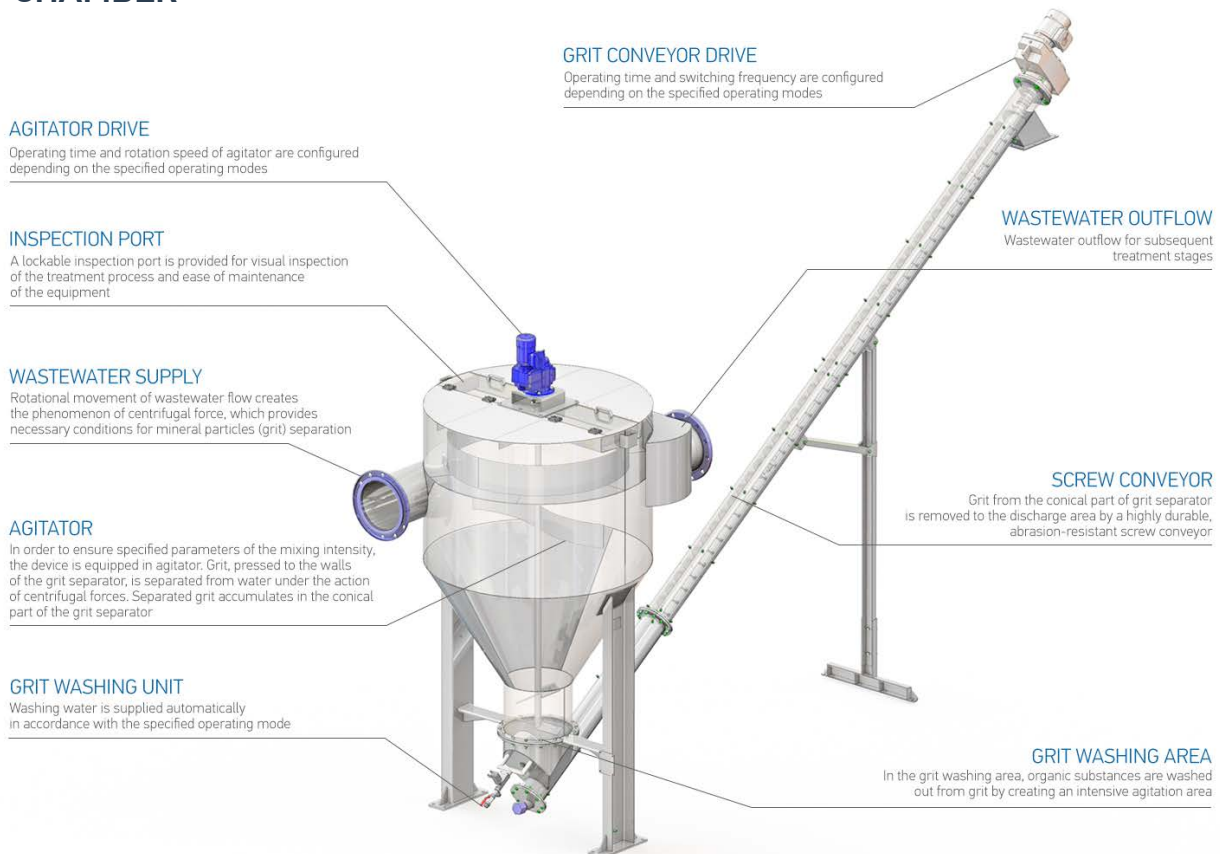
The grit chamber is a cone-shaped tank with an inclined conveyor for the settled sand. The inlet and outlet branch pipes for wastewater are connected to the upper flow-through area of the tank. A mixer device driven by a gear motor is vertically installed inside the tank. Another gear motor drives the screw of the sand conveyor.



The sand conveyor is installed at an angle of 35° and is presented as a fixed enclosure assembled from sections with a rotating screw located inside of it. The round enclosure is protected from abrasion inside by wear-resistant inserts. The enclosure sections are connected by flange connections.

Wastewater enters the flow area of the cone-shaped tank and moves in a circle along its walls due to the movement of the mixing device. Sand slides down along the walls of the cone-shaped tank. It accumulates in the lower part of the tank, from where it is transported by the screw conveyor to the unloading unit and is discharged into a storage tank or onto a conveyor.

## PRINCIPLE OF OPERATION OF THE TANGENTIAL FLOW GRIT CHAMBER



## OBVIOUS ADVANTAGES:

- » SPACE-SAVING DESIGN,
- » EASE OF USE,
- » PRODUCTIVITY,
- » FUNCTIONALITY,
- » RELIABILITY.

## WHAT DO WE OFFER?

- » Application of screw spirals of reinforced construction;
- » Precision manufacturing and verified engineering design, which ensures high structural strength;
- » Precisely calculated geometrical shape of the tank for maximum sand settling efficiency;
- » Mixing device to ensure the specified parameters of the mixing intensity required for the effective extraction of mineral impurities and prevention of sedimentation of organic contaminants;
- » Adjustable supports for the equipment leveling in case of uneven installation surface;
- » A circular spillway for optimal level maintenance in the grit chamber;
- » Ergonomic quick-release manholes for inspection;
- » Simple assembly and disassembly;
- » The main working units are easily accessible for maintenance;
- » Design in the form of a space-saving and hermetically sealed structure.

## PROCESS AUTOMATION IS AN INTEGRAL FEATURE OF ESMIL EQUIPMENT:

- » Various modes of operation and control of equipment;
- » Organization of the transfer of data on the state of equipment to the upper-level control system using standard communication protocols;
- » Convenient and intuitive setting of operating modes from the operator panel.

## EQUIPMENT PROTECTION:

- » Equipping electric drives (mixer and conveyor) with electrical protective devices;
- » Indication for the normal operation of equipment and emergency situations;
- » Possibility to turn on the backward motion (reverse stroke) of the screw to eliminate possible jamming.



## GUARANTEE OF LONG-TERM OPERATION

### WHY ARE WE CONFIDENT IN THE LONG-TERM AND TROUBLE-FREE OPERATION OF THE EQUIPMENT?

- » The spiral of the screw sand conveyor is made of high strength steel alloys with high abrasion-resistance and excellent structural properties.
- » Grit chambers are made of AISI 304/316 corrosion-resistant steel.
- » Perfect connection of enclosure parts and mechanisms due to the use of modern production technologies.

## SPECIFICATIONS OF TANGENTIAL FLOW GRIT CHAMBERS

Parameter Description	Parameter Value
Wastewater throughput, m <sup>3</sup> /h	25-150
Sand pulp output, l/sec	8-25
Sand output, t/h	0,3-1,0
Wastewater supply rate, m/sec	0,6-0,8
Diameter of the retained particles, over, mm	0,15

## WE OFFER THE FOLLOWING ADDITIONAL OPTIONS:

- » Heating system for the screw of the sand conveyor;
- » Longer screw for sand unloading;
- » Manufacturing of non-standard support for the sand transportation screw;
- » Manufacturing of the grit chamber enclosure and the sand transportation screw from AISI 316/316L steel.